

## Amendments to the Claims

Please amend the claims as follows:

1. (Currently Amended) A cartridge for dispensing a chemical reagent into a plating solution, comprising:
  - a vessel, wherein the vessel has an inlet and an outlet;
  - ~~at least one horizontal shelf~~ shelves contained inside the vessel, wherein the shelves are ~~at least one horizontal shelf is~~ positioned to hold the chemical reagent and expose the chemical reagent to the plating solution flowing from the inlet to the outlet;
  - and
  - a porous material disposed in a fluid path defined in the cartridge.
2. (Currently Amended) The cartridge of claim 1, wherein at least one ~~horizontal shelf~~ is impermeable to the plating solution.
3. (Currently Amended) The cartridge of claim 1, wherein the shelves comprise ~~at least one shelf comprises about 4 up to~~ about 50 shelves.
4. (Currently Amended) The cartridge of claim 1, wherein a headspace has a height disposed above the shelves ~~at least one horizontal shelf~~.
5. (Previously Presented) The cartridge of claim 4, wherein the headspace is in a range from about 5 cm to about 30 cm.
6. (Previously Presented) The cartridge of claim 5, wherein the plating solution flows from the inlet to the outlet via the headspace.
7. (Previously Presented) The cartridge of claim 6, wherein the plating solution is replenished by the chemical reagent.

8. (Previously Presented) The cartridge of claim 7, wherein the chemical reagent comprises a copper source compound selected from the group consisting of copper hydroxide, copper carbonate, copper oxide, copper sulfate, copper phosphate, derivatives thereof or combinations thereof.

9. (Currently Amended) The cartridge of claim 1, wherein the shelves include ~~at least one horizontal shelf includes a flat~~ shelves shelf, a longitudinally grooved shelves shelf, a tubular shelves shelf or combinations thereof.

10. (Previously Presented) The cartridge of claim 9, wherein the porous material is selected from the group consisting of a membrane, a filter, a frit, a mesh or combinations thereof.

11-35. (Canceled)

36. (Currently Amended) A cartridge for dispensing a chemical reagent into a plating solution, comprising:

a vessel, wherein the vessel has an inlet and an outlet;

~~at least one impermeable~~ shelves shelf contained inside the vessel, wherein the ~~at least one impermeable shelves are shelf is~~ positioned to hold the chemical reagent and expose the chemical reagent to the plating solution flowing from the inlet to the outlet; and

a porous material disposed in a fluid path defined in the cartridge.

37. (Currently Amended) The cartridge of claim 36, wherein the shelves are ~~shelf is~~ made from a material selected from the group consisting of plastics, stainless steel, aluminum, titanium, nickel-coated steel.

38. (Currently Amended) The cartridge of claim 36, wherein the shelves ~~comprise up at least one shelf comprises about 1 to about 50 shelves~~.

39. (Currently Amended) The cartridge of claim 36, wherein a headspace has a height disposed above the ~~at least one shelf~~ shelves.

40. (Previously Presented) The cartridge of claim 39, wherein the headspace is in a range from about 5 cm to about 30 cm.

41. (Previously Presented) The cartridge of claim 40, wherein the plating solution flows from the inlet to the outlet via the headspace.

42. (Previously Presented) The cartridge of claim 41, wherein the plating solution is replenished by the chemical reagent.

43. (Previously Presented) The cartridge of claim 42, wherein the chemical reagent comprises a copper source compound selected from the group consisting of copper hydroxide, copper carbonate, copper oxide, copper sulfate, copper phosphate, derivatives thereof or combinations thereof.

44. (Currently Amended) The cartridge of claim 36, wherein the shelves include ~~at least one shelf includes a flat~~ shelves shelf, a longitudinally grooved shelves shelf, a tubular shelves shelf or combinations thereof.

45. (Previously Presented) The cartridge of claim 44, wherein the porous material is selected from the group consisting of a membrane, a filter, a frit, a mesh or combinations thereof.